In the claims:

Please cancel claim 12, 13 and 14 without prejudice nor disclaimer as to the subject matter thereof.

1. (currently amended) A software system implemented in a circuit for sensing P-waves in a pacemaker, the system in combination with the circuit comprising:

means for detecting a plurality of atrial depolarization P-wave signals wherein said means for detecting comprises at least two subcutaneous electrodes in data communication with ~~said~~ means for pacing including a P-wave morphology detector; and

means for pacing a ventricle synchronously with each one of said plurality of atrial depolarization P-wave signals detected by the at least two subcutaneous electrodes;

wherein said means for pacing further comprises at least one pacing lead and wherein a first of said at least one pacing lead is adapted to electrically couple to a ventricular chamber.

2. (original)The system of claim 1 wherein said means for pacing is a single chamber ventricular-inhibited pacemaker.

3. (previously presented) The system of claim 2 wherein said pacemaker includes a hermetically sealed case including said at least two subcutaneous electrodes being peripherally distributed about the perimeter of the case.

4. (previously presented) The system of claim 2 wherein the at least one pacing lead comprises a ventricular pacing lead.

5. (previously presented) The system of claim 4 wherein said ventricular pacing lead is one of a unipolar pacing lead and a bipolar pacing lead.

6. (currently amended) A sensing circuit operating in co-operation with a pacemaker, a lead and at least one subcutaneous electrode array (SEA) implemented for pacing the ventricle synchronous with atrial depolarization signals, the circuitry comprising:

an analog to digital converter (ADC) for converting a plurality of cardiac depolarization signals;

a detector for detecting at least one of said plurality of cardiac depolarization signals coupled to said analog to digital converter (ADC);

a digital to analog converter (DAC) coupled to the detector to convert at least some of the signals passing through said detector;

a means for R-wave detection adapted to mechanically and electrically couple to a ventricular chamber; and

a means for P-wave detection, wherein the means for P-wave detection is disposed on an external portion of an implantable medical device, and wherein signals from both the means for R-wave detection and signals from the means for P-wave detection are electrically coupled to a P-wave morphology detector having a single P-wave detection output signal and the P-wave detection signal in electrically coupled to said digital to analog converter (DAC).

7. (previously presented) The circuit of claim 6 wherein said circuit further comprises:

a plurality of signal inputs, wherein said plurality of signal imputs further comprise:

a signal input into said analog to digital converter (ADC) for a ventricular electrogram (VEGM) data signal from said lead;

a signal input into said analog to digital converter (ADC) for a electrocardiogram (ECG) data signal from said at least one subcutaneous electrode array (SEA); and

a signal input into said analog to digital converter (ADC) for an electrocardiogram (ECG) data signal from an external lead.

8. (previously presented) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signal is transmitted via a ventricular lead.

9. (previously presented) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal is transmitted from at least one external electrode such as from a programmer implemented to validate said electrocardiogram (ECG) data signal from said subcutaneous electrode array (SEA).

10. (previously presented) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signal include a plurality of intrinsic ventricular depolarization waveforms that inhibit at least one pre-scheduled ventricular output pulse.

11. (previously presented) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal from the subcutaneous electrode array (SEA) is a primary input and provides the electrocardiogram (ECG) data signal to the analog to digital (ADC) on a substantially continuous basis.

12.-14. (canceled)